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| 09/888,530 | 06/26/2001 | Seiji Umemoto | Q65159 | 9350 |

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EXAMINER

CARIASO, ALAN B

ART UNIT

PAPER NUMBER

2875

DATE MAILED: 06/28/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

09/888,530

Applicant(s)

UMEMOTO ET AL.

Examiner

Alan Cariaso

Art Unit

2875

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 13-18 and 20-24 is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-12 and 19 is/are rejected.
- 7) ☒ Claim(s) 6 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 September 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other: ____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. The corrected or substitute drawings were received on September 27, 2001.
These drawings are approved.

Claim Objections

3. Claims 2 and 3 are objected to because of the following informalities: The terms "circularly" and "linearly" are incorrect to describe the noun "polarizer", and should be changed to -circular--and -linear--. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 7 and 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
6. Claims 7 and 19, the limitation "ridgelines" are indefinite as lacking structural relationship relative to the optical path changing face of the prismatic structures of preceding claims 5 and 17.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

8. Claims 1-5, 7-9, 11 and 12 are rejected under 35 U.S.C. 102(e) as being anticipated by MASUDA et al (US 6,340,999 B1).

9. MASUDA discloses a plate member (light guide 3, figs.1,9,10) including light output means (3d,3e,3f;fig.1) formed in its upper surface (3c) so that light incident on an incidence side surface (3a) of the plate member (3) is exited from the lower surface (3b) through the output means (figs.1,9,10); an adhesive layer (10 or 10a;figs.1,9,10) having a refractive index lower ($n=1.38$;col.15,lines 34-39; col.17,lines 25-29) than that of the plate member ($n=1.49$,col.15,line 39); and an anti-reflection layer (8,fig.9) made of a circular polarizer (4, col.11, lines 24-50) and bonded to a lower surface (3b) of the plate member (3) through the adhesive layer (10,10a); wherein the anti-reflection layer (4,8) made of a circular polarizer (4) includes a quarter-wave plate (4c), a half-wave plate (4b), and a linear polarizer (4a, col.11, lines 40-44); wherein a maximum intensity of

Art Unit: 2875

light exited from the lower surface of the plate member in terms of a plane perpendicular to reference planes of both the lower surface and incidence side surfaces is inclined at an angle of not larger than 30 degrees with respect to a normal to the reference plane of the lower surface (fig.4A); wherein the light output means (3f) formed in the upper surface (3c) of the plate member (3) is formed by a repetitive structure of prismatic structures (3d,3e) each shaped like a triangle in section (fig.1) and each having an optical path changing face (3d or 3e) inclined at an inclination angle that includes the range of 35 to 48 degrees (col.13, lines 48-54; col.14, lines 14-18) with respect to the reference plane of the lower surface (3b); wherein ridgelines (either 3d or 3e) of the prismatic structures (3f) are inclined within a range of ± 30 degrees with respect to the reference plane of the incidence side surface (meaning the complementary ranges recited on col.13, line 53 and col.14, line 16 being 80-10 degrees or 75-15 degrees with the vertical or plane of incidence side surface); wherein the refractive index of the adhesive layer (10,10a) for bonding the anti-reflection layer (4,8) to the lower surface (3b) of the plate member (3) is lower than the plate member by 0.01 or more (col.16, lines 10-12); wherein the refractive index of the adhesive layer bonding the anti-reflection layer to the lower surface of the plate member is not higher than 1.47 (col.16, lines 23-25, $n=1.38$); wherein a plane light source unit (1,fig.1) comprises a light source (2) being disposed on one side (3a, fig.1) of a light pipe (3) defined in claim 1; wherein a reflection type liquid-crystal display device (5,fig.1) having a cell (5a,6,7,5b,fig.1) including a reflection layer (7) is disposed on a light exit side (3b) of a plane light source (1) unit defined in claim 11.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over MASUDA et al (US 6,340,999 B1).

12. MASUDA discloses applicant's invention except the adhesive layer being constituted by a tacky layer. It would have been obvious to one having ordinary skill in the art at the time of applicant's invention to provide the plane light source unit with the adhesive layer (10,10a) constituting a tacky layer since it was known in the art that a tacky layer or substance is an art-equivalent reference to an adhesive substance.

Allowable Subject Matter

13. Claim 6 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

14. Claims 13-18 and 20-24 are allowed.

15. Claim 19 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Art Unit: 2875

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. OHE et al (US 5,550,676) shows an edge-lit plate member (fig.4) having output reflective means (9) and a diffusive layer (3) adhesively (col.5, line 63 to col.6, line 3) bonded to the light-emitting surface (6) of the plate member. GUNJIMA et al (US 5,587,816) shows an adhesive having the same refractive index ("1.49"; col.19, lines 3-5) as that of the light guide 3 and prism array 13. BAO et al (US 6,266,108) show a plate member 20 having an upper surface made of prismatic structures directing light towards a light-emitting surface adjacent and bonded to a reflective LCD 0 by adhesive (40a) with a refractive index approximately matching the light guide (col.10).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alan Cariaso whose telephone number is (703) 308-1952. The examiner can normally be reached on M-F (9:00-5:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on (703) 305-4939. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7724 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.



Alan Cariaso
Primary Examiner
Art Unit 2875

AC
June 26, 2002